

PATENT ABSTRACTS OF JAPAN

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(54) DISK CARTRIDGE DEVICE AND DISK CARTRIDGE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a disk cartridge device which is capable of opening and closing the shutters of disk cartridges of different sizes by using one common shutter opening/closing member of a driver and a disk cartridge device capable of easily recognizing the inserting direction into the driver.

SOLUTION: This device has the disk cartridges 1, (21) which are stowed with the disks of different disk diameters in respective cartridge casings of different sizes and thicknesses and have openable and closable shutters 7 (21) in the cartridge casings and the shutter opening/closing member 9 with which the shutters are opened by shutter opening pawls 9a when the disk cartridges are inserted into the driver and the shutters 7 (21) are closed by shutter closing pawls 9b when the disk cartridges are discharged from the driver. The shutter opening position and shutter opening position of the disk cartridge of the large disk diameter and the disk cartridge of the small disk diameter are made the same. The insertion side ends of the disk cartridges 1, (21) are formed to an arcuate surface shape 1a, by which the easy recognition of the insertion

direction to the driver is made possible.

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CLAIMS

[Claim(s)]

[Claim 1] Read and/or a write-in method are the same, and the disk with which the diameters of a disk differ is stored in each cartridge case with which magnitude differs from thickness. Closing motion of an accessible window part of the above-mentioned disk is enabled from the outside at the above-mentioned cartridge case. The disk cartridge from which a class equipped with the shutter locked by the shutter lock member in the state of the closedown of the above-mentioned window part differs, When it prepares for the drive equipment side of the above-mentioned disk cartridge and the above-mentioned disk cartridge is inserted in the above-mentioned drive equipment, the above-mentioned shutter is opened. One shutter closing motion member to which the closedown of the above-mentioned shutter is carried out when discharged from the above-mentioned drive equipment, The disk cartridge unit characterized by making the same the shutter open position and shutter closedown location of the large disk cartridge of a preparation and the above-mentioned diameter of a disk, and the small disk cartridge of the diameter of a disk.

[Claim 2] The above-mentioned shutter closing-motion member is the disk cartridge unit carry out having had the shutter disconnection pawl which the lock of the above-

mentioned shutter lock member is canceled, and the above-mentioned shutter is put back, and opens when the above-mentioned disk cartridge is inserted in the above-mentioned drive equipment in a disk cartridge unit according to claim 1, and the shutter closedown pawl are engaged to an open beam window hole in the above-mentioned shutter when the above-mentioned disk cartridge is discharged from the above-mentioned drive equipment, and stop the shutter concerned as the description.

[Claim 3] the disk cartridge which be the disk cartridge from which a class equipped with the shutter which read and/or a write-in method be the same, and the disk with which the diameters of a disk differ be store in each cartridge case with which magnitude differ from thickness, enable closing motion of an accessible window part of the above-mentioned disk from the outside at the above-mentioned cartridge case, and be locked by the shutter lock member in the state of the closedown of the above-mentioned window part differ, and be characterize by to form a comparatively big notching side in the insertion side edge section of the above-mentioned disk cartridge

[Claim 4] It is the disk cartridge by which it is characterized [which is made into the convex circular face configuration succeeding this R side] while the above-mentioned notching side makes an R side both the corners of the insertion side edge section in a disk cartridge according to claim 3.

[Claim 5] The above-mentioned notching side is a disk cartridge characterized by being the same configuration or a parallelism configuration in the disk cartridge from which a class differs in a disk cartridge according to claim 3 or 4.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention irradiates a light beam at the signal recording layer of an optical disk, and it is related with the disk cartridge unit and disk cartridge which reproduced the information signal recorded on the signal recording layer by record or the signal recording layer in the information signal. Are selectively loaded with the disk cartridge from which the class stored in each cartridge case with which magnitude differs from thickness differs [the disk with which the diameters of a disk differ] in detail to drive equipment. By making the same the shutter open position and shutter closedown location of the disk cartridge from which it is the so-called compatible color TV system, and these classes differ By being the disk cartridge unit which enabled it to simplify a shutter closing motion member, and making the insertion side of a disk cartridge into a notching side configuration While recognizing the

insertion side of a disk cartridge from the configuration of a cartridge case and preventing incorrect insertion to drive equipment, it is the disk cartridge a notching side configuration serves as a guide and it enabled it to insert in drive equipment with a normal position.

[0002]

[Description of the Prior Art] Conventionally, the optical disk which reproduces the information recorded on this record medium as a record medium of various information, such as audio information and image information, using a light beam, or was recorded is proposed. This kind of optical disk has spread widely as the so-called disk cartridge stored in the cartridge case.

[0003] On the other hand, if it is in the drive equipment with which a disk cartridge is applied, much more miniaturization is demanded in consideration of the installation tooth space when including, for example in information processors, such as a computer.

[0004] For the miniaturization of drive equipment, the miniaturization of a disk cartridge is also required and, moreover, high capacity-ization of a disk cartridge is also demanded. For this reason, this invention applicant has proposed previously the disk cartridge from which the class by which the disk with which the diameters of a disk differ as a disk cartridge was stored in each cartridge case with which magnitude differs from thickness differs by Japanese Patent Application No. No. 176029 [11 to]. Moreover, this invention applicant has proposed previously the disk cartridge unit of the so-called compatible color TV system with which one drive equipment was selectively loaded with the disk cartridge from which the class by which the disk with which the diameters of a disk differ was stored in each cartridge case with which magnitude differs from thickness differs by Japanese Patent Application No. No. 323227 [11 to] etc.

[0005]

[Problem(s) to be Solved by the Invention] However, in the case of the drive equipment which carries out revolution actuation, to the location which is in agreement with a spindle motor, the center of rotation of a disk needs to insert the disk of a disk cartridge with which magnitude differs into drive equipment, and needs to position it with one spindle motor in the compatible color TV system with which one drive equipment was selectively loaded with the disk cartridge from which the class from which the diameter of a disk mentioned above differs differs.

[0006] For this reason, in the disk cartridge from which magnitude differs, if the closedown locations which stop the open position which opens a shutter by the shutter closing motion member, and a shutter differ, the shutter closing motion member doubled with the disk cartridge from which magnitude differs by the drive equipment side must be prepared. For example, there is no evacuation measure supposing the ability to perform closing motion of the shutter of the disk cartridge from which magnitude differs with one drive equipment using a common shutter

closing motion member in disk cartridges, such as a floppy (trademark) disk, and MD (mini disc), MO (magneto-optic disk).

[0007] Moreover, as for the disk cartridge mentioned above, the appearance has the square configuration mostly, and discernment of the insertion sense to the drive equipment of a disk cartridge is displayed on the cartridge case as an arrow-head marker. However, the arrow-head marker was very small and was what it is hard for a user to recognize. And since the case of a disk cartridge also has the square configuration, it is very difficult to discriminate the sense of the path of insertion from the configuration of a disk cartridge.

[0008] This invention aims at obtaining the disk cartridge which can moreover glance at the sense of the path of insertion of a disk cartridge, and can recognize easily, and can call in insertion to drive equipment with a businessman with political affiliation position for the purpose of disk cartridge unit ***** which enabled it to open and close the shutter of the disk cartridge from which it was made in order to cancel a technical problem which was mentioned above, and magnitude differs using one shutter closing motion member, and can be inserted.

[0009]

[Means for Solving the Problem] The disk with which the diameters of a disk differ is stored in the cartridge case with which magnitude differs, and the disk cartridge unit according to this invention in order to attain the above-mentioned object is equipped with the disk cartridge from which a class equipped with the shutter which enables closing motion of a window part differs, and the shutter closing-motion member which open and close the shutter of a disk cartridge to drive equipment, and makes the same the shutter open position and the shutter closedown location of the large disk cartridge of the diameter of a disk, and the small disk cartridge of the diameter of a disk.

[0010] According to the disk cartridge unit mentioned above, by having made the same the shutter open position and shutter closedown location of the disk cartridge from which magnitude differs, the switching action of a shutter can be performed now by one common shutter closing motion member, and the center of rotation of the disk of a disk cartridge with which magnitude differs can be positioned to the spindle motor of drive equipment.

[0011] Moreover, the shutter closing motion member is equipped with the shutter disconnection pawl which the lock of a shutter lock member is canceled, and a shutter is put back, and is opened when a disk cartridge is inserted in drive equipment, and the shutter closedown pawl which engages with a shutter in an open beam window hole, and stops a shutter when a disk cartridge is discharged from drive equipment.

[0012] Moreover, the disk with which the diameters of a disk differ is stored in each cartridge case with which magnitude differs from thickness, and the disk cartridge by this invention is a disk cartridge from which a class equipped with the shutter which

enables closing motion of a window part differs, and forms a comparatively big notching side in the insertion side edge section of a disk cartridge.

[0013] According to the disk cartridge mentioned above, by the notching side being formed in the insertion side edge section of a disk cartridge, the insertion sense to drive equipment can glance, it can recognize easily, and incorrect insertion can be prevented beforehand. Moreover, when it is going to insert a disk cartridge in insertion opening of drive equipment aslant, it becomes an advice guide to insertion opening, and a notching side is called in by the position with a normal disk cartridge, and can insert.

[0014] Moreover, a notching side is made into the convex circular face configuration succeeding this R side while it makes an R side both the corners of the insertion side edge section.

[0015] Moreover, the notching side is made into the same configuration or the parallelism configuration in the disk cartridge from which a class differs.

[0016]

[Embodiment of the Invention] Taking the case of the case where the gestalt of operation of the disk cartridge unit by this invention and a disk cartridge is hereafter applied to the disk cartridge of two kinds of size from which the diameter of a disk differs, it explains with reference to a drawing.

[0017] The perspective view in the shutter closedown condition that drawing 1 looked at the large disk cartridge (henceforth the 1st disk cartridge) of the diameter of a disk from the top half side, The top view which similarly looked at drawing 2 from the top half side, rear-face drawing which similarly looked at drawing 3 from the bottom half side, The perspective view in the shutter closedown condition that drawing 4 looked at the small disk cartridge (henceforth the 2nd disk cartridge) of the diameter of a disk from the top half side, the top view which similarly looked at drawing 5 from the top half side, and drawing 6 are rear-face drawings similarly seen from the bottom half side.

[0018] A sign 1 shows the 1st whole disk cartridge, and the cartridge case 2 is constituted by the coalesce type by ultrasonic welding in the plane of composition of the periphery section of the top half 3 and the bottom half 4. The disk 5 stored in the 1st disk cartridge 1 is an optical disk, and a disk outer diameter is $\phi 64.8\text{mm}$ as an example, and it shows the path of insertion of the 1st disk cartridge 1 with the arrow-head marker 6.

[0019] Moreover, it is made convex circular face configuration 1a, and this circular face configuration 1a is identified by the insertion side of the 1st disk cartridge 1 as an insertion side of the 1st disk cartridge 1. In detail, circular face configuration 1a is O1. The radii of the radius R1 (83mm) made into a core, O2, and O3 It is the radius R2 made into a core, and the radii configuration which compounded the radii of R3 (respectively 49.4mm), and both corners are O4 and O5. They are the radius R4 made into a core, and the R of R5 (respectively 3mm). Here, the disk case 2 is width of face

W1 of one side which intersects perpendicularly with the path of insertion. 72mm and the depth die length W2 of the other sides which intersect perpendicularly with this side 68mm and thickness D1 Specification is carried out to 4.7mm. Moreover, a disk 5 is the distance S1 from the back end side of the cartridge case 2 to a disk core to the cartridge case 2. Distance S2 from the side edge of the shutter plate which 34mm and the cartridge case 2 mention later, and an opposite hand to a disk core It is made 33.7mm.

[0020] In the 1st disk cartridge 1 mentioned above It has the shutter plate 7 fabricated in vertical both sides of the cartridge case 2 in the shape of [of KO which can be opened and closed at a slide ceremony] a typeface. While a part of direction of a path of the top face (field of the side to which bias is applied) of a disk 5 is discovered from the top half's 3 opening aperture 3a at the top-face side of a disk cartridge 1 by this shutter plate 7 being released In the underside side of the 1st disk cartridge 1, a part of direction of a path of the underside (field which can write informational) of a disk 5 is discovered from the opening aperture which the bottom half 4 does not illustrate.

[0021] It changes this shutter plate 7 into a closedown condition, and it is usually locked by the closedown location by the lock member which is not illustrated. The switching action of the shutter plate 7 is inserted in the cartridge electrode holder 8 of the drive equipment whose 1st disk cartridge's 1 is a record regenerative apparatus as shown in drawing 7 in detail. Immediately after the lock member was canceled by shutter disconnection pawl 9a of the shutter closing motion member 9 prepared in the cartridge electrode-holder 8 side Shutter closedown pawl 9b engages with the window hole 11 by which opening is carried out to the side face of a shutter plate at the same time shutter disconnection pawl 9a contacts the shutter front end side 10 of the shutter plate 7. The SHANTA plate 7 is put back with migration to the path of insertion of the 1st disk cartridge 1 by this, and as shown in drawing 8 , the shutter plate 7 is opened by it. Moreover, if the 1st disk cartridge 1 is discharged from drive equipment, the shutter plate 7 will be pulled back by shutter closedown pawl 9b, and will be stopped.

[0022] In addition, in drawing 1 , the incorrect elimination prevention plug 12 for not eliminating accidentally the recording information currently written in the disk 5 is formed in the tooth back of the 1st disk cartridge 1. The incorrect elimination prevention detection hole 13 which is interlocked with slide actuation of this incorrect elimination prevention plug 12, and is opened and closed is formed in the bottom half 4. In drawing 3 , signs 14 and 15 are the discernment holes for identifying the specification of the 1st disk cartridge 1.

[0023] Moreover, the bottom half 4 of the 1st disk cartridge 1 is adjoined in the incorrect elimination prevention detection hole 13, and on the round hole-like locating hole 16, this locating hole 16, and the diagonal line, the long hole-like locating hole 18 is formed aslant at the insertion head side of a cartridge, and is formed in the long

hole-like locating hole 17, a locating hole 16, and parallel at the cartridge back end side. That is, the 1st criteria locating hole is constituted from a locating hole 16 and a locating hole 18, and the 2nd criteria locating hole consists of a locating hole 16 and a locating hole 17.

[0024] On the other hand, a sign 21 shows the 2nd whole disk cartridge, and the cartridge case 22 is constituted by the coalesce type by ultrasonic welding in the plane of composition of the top half 23 and the bottom half 24. The disk 25 stored in the 2nd disk cartridge 21 is an optical disk, and a disk outer diameter is $\phi 50\text{mm}$ as an example, and it shows the path of insertion of the 2nd disk cartridge 21 with the arrow-head marker 26.

[0025] Moreover, it is made convex circular face configuration 21a, and this circular face configuration 21a is identified by the insertion side of the 2nd disk cartridge 21 as an insertion side of the 2nd disk cartridge 21. In detail, circular face configuration 21a is O6. The radii of the radius R6 (67.4mm) made into a core, O7, and O8 It is the radius R7 made into a core, and the radii configuration which compounded the radii of R8 (respectively 39.9mm), and both corners are O9, the radius R9 centering on O10, and the R of R10 (respectively 2.5mm). Here, the disk case 22 is width-of-face W3 of one side which intersects perpendicularly with the path of insertion. 58mm and the depth die length W4 of the other sides which intersect perpendicularly with this side 53mm and thickness D2 Specification is carried out to 4mm. Moreover, a disk 25 is the distance S3 from the back end side of the cartridge case 2 to a disk core to the cartridge case 22. 26.9mm and distance S4 from the side edge of a shutter plate and an opposite hand to a disk core which the cartridge case 2 mentions later It is made 26.4mm.

[0026] In the 2nd disk cartridge 21 mentioned above It has the shutter plate 27 of the shape of a typeface of KO which can be opened and closed at a slide ceremony for vertical both sides of the cartridge case 22. While a part of direction of a path of the top face (field of the side to which bias is applied) of a disk 25 is discovered from the top half's 23 opening aperture 23a at the top-face side of the 2nd disk cartridge 21 by this shutter plate 27 being released In the underside side of the 2nd disk cartridge 21, a part of direction of a path of the underside (field which can write informational) of a disk 25 is discovered from the opening aperture which the bottom half 24 does not illustrate.

[0027] It changes this shutter plate 27 into a closedown condition, and it is usually locked by the closedown location by the lock member which is not illustrated. The switching action of the shutter plate 27 is that the 2nd disk cartridge 21 is inserted in the cartridge electrode holder 8 of drive equipment as shown in drawing 9 in detail. Immediately after the lock member was canceled by shutter disconnection pawl 9a of the shutter closing motion member 9 prepared in the cartridge electrode-holder 8 side Shutter closedown pawl 9b engages with the window hole 29 by which opening is carried out to the side face of a shutter plate at the same time shutter disconnection

pawl 9a contacts the shutter front end side 28 of the shutter plate 27. The SHANTA plate 27 is put back with migration to the path of insertion of the 2nd disk cartridge 21 by this, and as shown in drawing 10, the shutter plate 27 is opened by it. Moreover, if the 2nd disk cartridge 21 is discharged from drive equipment, the shutter plate 27 will be pulled back by shutter closedown pawl 9b, and will be stopped.

[0028] In addition, the incorrect elimination prevention plug 30 for not eliminating accidentally the recording information currently written in the disk 25 is formed in the tooth back of the 2nd disk cartridge 21. The incorrect elimination prevention detection hole 31 which is interlocked with slide actuation of this incorrect elimination prevention plug 30, and is opened and closed is formed in the bottom half 24. In drawing 6, signs 32 and 33 are the discernment holes for identifying the specification of the 2nd disk cartridge 21.

[0029] Moreover, the bottom half 24 of the 2nd disk cartridge 21 is adjoined in the incorrect elimination prevention detection hole 31, and on the round hole-like locating hole 34, this locating hole 34, and the diagonal line, the long hole-like locating hole 36 is formed aslant at the insertion head side of a cartridge, and is formed in the long hole-like locating hole 35, a locating hole 34, and parallel at the cartridge back end side. That is, the 1st criteria locating hole is constituted from a locating hole 34 and a locating hole 36, and the 2nd criteria locating hole consists of a locating hole 34 and a locating hole 35.

[0030] Thus, the 1st and 2nd constituted disk cartridges 1 and 21 are held at the common cartridge electrode holder 8 of drive equipment mentioned above, and a loading location can be made to load with them.

[0031] Drawing 11 is the perspective view of the cartridge electrode holder 8, the cartridge electrode holder 8 consists of the shape of a cross-section KO typeface of a left Uichi pair which faces mutually, and the shutter closing motion member 9 mentioned above in one cartridge electrode holder 8 is attached. That is, the cartridge electrode holder 8 is connected by the link mechanism which is not illustrated movable so that electrode-holder spacing may be equivalent to the breadth of each disk cart RISSHI 1 and 21 by the case where the 1st big disk cartridge 1 of the diameter of a disk is inserted, and the case where the 2nd small disk cartridge 21 of the diameter of a disk is inserted. Therefore, one common shutter closing motion member 9 enables it to open and close the shutter plates 7 and 27 of the 1st disk cartridge 1 and the 2nd disk cartridge 21.

[0032] Now, the loading condition of having made it in agreement with the spindle motor which the 1st disk cartridge 1 is positioned by the cartridge electrode holder 8, the loading condition of having made it in agreement with the spindle motor which the center of rotation of a disk 5 does not illustrate is drawing 8, and the 2nd disk cartridge 21 is positioned by the cartridge electrode holder 8, and the center of rotation of a disk 25 does not illustrate is drawing 10.

[0033] For this reason, when a disk cartridge is inserted in drive equipment, shutter

open position P1 where the shutter plate 7 of the 1st disk cartridge 1 is opened by shutter disconnection pawl 9a of the shutter closing motion member 9 Shutter open position P2 where the shutter plate 27 of the 2nd disk cartridge 21 is opened by shutter disconnection pawl 9a of the shutter closing motion member 9 By making it the same location Fixing of the loading location of the 1st and 2nd disk cartridges 1 and 21 can be carried out to accuracy by one common shutter closing motion member 9.

[0034] moreover, shutter closedown location C1 where the closedown of the shutter plate 7 of the 1st disk cartridge 1 is carried out by shutter closedown pawl 9b of the shutter closing motion member 9 when a disk cartridge is discharged from drive equipment Shutter closedown location C2 where the shutter plate 27 of the 2nd disk cartridge 21 is opened by shutter closedown pawl 9b of the shutter closing motion member 9 By making it the same location Fixing of the 1st and 2nd disk cartridges 1 and the timing of blowdown of 21 can be carried out to accuracy by one common shutter closing motion member 9.

[0035] As for drawing 12 , the 1st disk cartridge 1 is inserted in the cartridge electrode holder 8. The side elevation of physical relationship with the 1st disk cartridge 1 just before the shutter plate 7 is opened by the shutter closing motion member 9, shutter disconnection pawl 9a, and shutter closedown pawl 9b, As for drawing 13 , the shutter plate 7 is opened. It is the side elevation of physical relationship with shutter disconnection pawl 9a at the time of the loading location where the locating holes 16 and 18 of the 1st disk cartridge 1 were positioned by gage pins 37a and 37a, and the height arrangement was carried out on the cradle 37 for a height arrangement, and 37, and shutter closedown pawl 9b. In addition, although the path of insertion of the 1st disk cartridge 1 is a space longitudinal direction, the condition that the right-and-left both ends of the 1st disk cartridge 1 are held with the cartridge electrode holder 8 is shown on explanation by a diagram.

[0036] Since the 1st disk cartridge 1 only has the gap of 0.2mm of abbreviation in the vertical direction to the cartridge electrode holder 8 according to this Even if it is in the condition which the height arrangement of the 1st disk cartridge 1 was carried out in the loading location as shown in drawing 13 , and was energized upwards to the cartridge electrode holder 8 The hole dimension of the vertical direction of the window hole 11 concerned is prescribed that shutter closedown pawl 9b does not separate from the window hole 11 of the shutter plate 7.

[0037] As for drawing 14 , the 2nd disk cartridge 21 is inserted in the cartridge electrode holder 8. The side elevation of physical relationship with the 2nd disk cartridge 21 just before the shutter plate 27 is opened by the shutter closing motion member 9, shutter disconnection pawl 9a, and shutter closedown pawl 9b, As for drawing 15 , the shutter plate 27 is opened. The 2nd disk cartridge 21 is the side elevation of physical relationship with shutter disconnection pawl 9a at the time of the loading location where the locating holes 34 and 36 were positioned by gage pins

38a and 38a, and were positioned on the cradle 38 for a height arrangement, and 38, and shutter closedown pawl 9b. In addition, although the path of insertion of the 2nd disk cartridge 21 is a space longitudinal direction like an above-mentioned case in drawing, the condition that the right-and-left both ends of the 2nd disk cartridge 21 are held with the cartridge electrode holder 8 is shown on explanation.

[0038] according to this, although the 2nd disk cartridge 21 has the gap of 0.9mm of abbreviation in the vertical direction to the cartridge electrode holder 8, as shown in drawing 15, the height arrangement of the 2nd disk cartridge 21 is carried out in a loading location, and even if it is in the condition energized upwards to the cartridge electrode holder 8, an engagement condition does not separate [shutter closedown pawl 9b] from the window hole 29 of the shutter plate 27 -- as -- the hole of the window hole 29 concerned -- the dimension has been specified.

[0039] Moreover, in the state of loading of the loading location of the 1st disk cartridge 1, the clearance holes 39 and 40 for evacuating from these gage pin 38a and a cradle 38 are formed so that the 2nd gage pins 38a and 38a and cradles 38 and 38 of a disk cartridge 21 may not interfere. In addition, 41 and 42 are the clearance holes for evacuating the 2nd disk cartridge 21 from the cradle which is not illustrated for carrying out a height arrangement.

[0040] Drawing 16 is the top view of the insertion condition to the cartridge electrode holder 80 of the 1st disk cartridge 100 in which the modification of the 1st disk cartridge 1 was shown. The side elevation of physical relationship with the 1st disk cartridge 100 just before, as for drawing 17, the shutter plate 7 of the 1st disk cartridge 100 is opened by the shutter closing motion member 9, shutter disconnection pawl 9a, and shutter closedown pawl 9b. The side elevation of physical relationship with shutter disconnection pawl 9a at the time of the loading location where, as for drawing 18, the shutter plate 7 was opened, and it was positioned on the cradle 37 for a height arrangement in which the 1st disk cartridge 100 has gage pins 37a and 37a, and 37, and shutter closedown pawl 9b. The side elevation of physical relationship with the 2nd disk cartridge 21 just before, as for drawing 19, the shutter plate 27 of the 2nd disk cartridge 21 is opened by the shutter closing motion member 9, shutter disconnection pawl 9a, and shutter closedown pawl 9b. As for drawing 20, the shutter plate 27 is opened. It is the side elevation of physical relationship with shutter disconnection pawl 9a at the time of the loading location where the 2nd disk cartridge 21 was positioned on the cradle 38 for a height arrangement which has gage pins 38a and 38a, and 38, and shutter closedown pawl 9b.

[0041] In this case, the 1st disk cartridge 100 leaves half partial 3b corresponding to the part in which the top half 3 side is stored in the disk 5, and is set to half partial 3c to which the perimeter by the side of the method of that outside becomes low the shape of a level difference. Thus, with having constituted, as for the 1st disk cartridge 100, thickness from the bottom half's 4 base to [whole] half partial 3b is set to the 4 same as the thickness of the 2nd disk cartridge 13 in the thickness from the base

of 4.7mm and the bottom half 4 to half partial 3c.

[0042] Thus, since thickness of the part held by constituting in the 1st disk cartridge 100 at the cartridge electrode holder 80 of the 1st disk cartridge 100 and the 2nd disk cartridge 21 can be made the same, it is made less than 0.2mm of abbreviation, and it can be stabilized and the clearance between the vertical directions of the 1st disk cartridge 100 and the 2nd disk cartridge 21 can be made to hold to a cartridge electrode holder. By this, migration of the vertical direction when the height arrangement of the 1st and 2nd disk cartridges 100 and 21 is carried out in a loading location can also be suppressed to the minimum, and an engagement condition does not separate [shutter closedown pawl 9b] from it from the window holes 11 and 29 of the shutter plates 7 and 27.

[0043] Drawing 21 is the 1st disk cartridge 200 which showed the modification of the 1st disk cartridge 100 shown in drawing 16 . The side elevation of physical relationship with the 1st disk cartridge 200 just before the shutter plate 7 is opened by the shutter closing motion member 9, shutter disconnection pawl 9a, and shutter closedown pawl 9b, As for drawing 22 , the shutter plate 7 is opened. It is the side elevation of physical relationship with shutter disconnection pawl 9a at the time of the loading location where the 1st disk cartridge 200 was positioned on the cradle 37 for a height arrangement which has gage pins 37a and 37a, and 37, and shutter closedown pawl 9b.

[0044] According to this, the 1st disk cartridge 200 leaves the part in which the disk 5 is stored also in the bottom half 4 side with the top half 3 side, and makes low the perimeter by the side of the method of the outside the shape of a level difference. In this case, the thickness of the 1st whole disk cartridge 200 is [the level difference part by the side of 0.6mm and the bottom half 4 of the level difference part by the side of 4.7mm and the top half 3] 0.1mm.

[0045] By having constituted the 1st disk cartridge 200, as mentioned above Although this invention did not explain by making into the same height the height of the cradle 37 which carries out the height arrangement of the 1st disk cartridge 200 in a loading location, and the cradle 38 which carries out the height arrangement of the 2nd disk cartridge 21 which showed at drawing 20 Distance with the disk of the 1st disk cartridge 200 and the 2nd disk cartridge 21 can be made the same from an optical head, and the device section can be simplified by this.

[0046] Moreover, an insertion-to drive equipment side is made into the parallelism configuration of the convex circular face configurations 1a and 21a, the 1st disk cartridge 1 and 2nd disk cartridge 21 can glance at the circular face configuration 1a and 21a side being an insertion side of a disk cartridge from the whole configuration, and can recognize it easily, and it can prevent beforehand making a mistake in the insertion sense to drive equipment, and being incorrect-inserted in it.

[0047] Moreover, by the insertion side of the 1st disk cartridge 1 and the 2nd disk cartridge 21 being formed in the convex circular face configurations 1a and 21a, also

when the 1st disk cartridge 1 or 2nd disk cartridge 21 is inserted with a slanting position to insertion opening of drive equipment, a circular face configuration serves as an advice guide to insertion opening, and a disk cartridge can be called in into a normal position.

[0048] Although the gestalt of operation mentioned above explained the case where the configuration by the side of insertion of a disk cartridge was formed in a circular face configuration. In addition, as shown in drawing 23, both the corners by the side of insertion of the 1st disk cartridge 1 are formed in the corner notching sides 43 and 43 of the shape of comparatively big flatness. Moreover, you may make it form both the corners by the side of insertion of the 2nd disk cartridge 21 in the corner notching sides 44 and 44 of the shape of comparatively big flatness, as shown in drawing 24. Also when it can glance at the corner notching sides 43 and 44 being the insertion sides of a disk cartridge also in this case, and it has recognized easily and it is inserted with a slanting position, the corner notching sides 43 and 44 serve as an advice guide, and a disk cartridge can be called in into a normal position.

[0049] The disk cartridge unit by this invention as mentioned above. By equipping drive equipment with one common shutter closing motion member 9. The shutter open position when inserting the 1st large disk cartridge of the diameter of a disk, and the 2nd small disk cartridge of the diameter of a disk in one drive equipment, There is an advantage that a shutter closedown location can make it the same, a complicated device is abolished when using the disk cartridge from which the diameter of a disk differs by this with the drive equipment of a compatible color TV system, and it can simplify.

[0050] Moreover, the disk cartridge by this invention is having formed big circular face configuration 1a or both corners in the flatness-like corner notching sides 43 and 44 for the configuration of the insertion side edge section to the drive equipment of the 1st large disk cartridge of the diameter of a disk, and the 2nd small disk cartridge of the diameter of a disk, it can glance at it being the insertion side of a disk cartridge, can recognize it easily, and can prevent incorrect insertion to drive equipment. Moreover, also when a disk cartridge is inserted in drive equipment with a slanting position, a circular face configuration or a corner notching side serves as an advice guide to insertion opening, and there is an advantage that a disk cartridge can be called in into a normal position.

[0051] Deformation implementation various by within the limits which is not limited to the gestalt of operation which mentioned above and was shown in the drawing, and does not deviate from the summary is possible for this invention.

[0052] Although the gestalt of operation of this invention explained the case of the disk cartridge of two kinds of size from which the diameter of a disk differs, the shutter open position and shutter closedown location of the disk cartridge from which two or more kinds of magnitude differs using one common shutter closing motion member can also be made the same.

[0053] Moreover, it is widely applicable to the disk cartridge stored as a disk of a disk cartridge in cartridge cases, such as MD (mini disc) and a hard disk, others, for example, a magneto-optic disk, and a floppy disk. [optical disk]

[0054]

[Effect of the Invention] It is effective in the ability to be able to simplify [as explained above, the shutter open position and the shutter closedown location when inserting the 1st large disk cartridge of the diameter of a disk and the 2nd small disk cartridge of the diameter of a disk in one drive equipment by equipping drive equipment with one common shutter closing-motion member can make the disk cartridge unit of this invention the same, and abolish a device complicated when using the disk cartridge from which the diameter of a disk differs with the drive equipment of a compatible color TV system, and].

[0055] Moreover, the disk cartridge of this invention is having formed the comparatively big notching side in the insertion side edge section of a disk cartridge, the insertion side of a disk cartridge can glance at it, can be recognized easily, and can prevent incorrect insertion to drive equipment. Moreover, also when a disk cartridge is inserted in drive equipment with a slanting position, a circular face configuration serves as an advice guide to insertion opening of drive equipment, and it is effective in the ability to call in a disk cartridge into a normal position.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view which looked at the 1st disk cartridge by this invention from the top half side.

[Drawing 2] It is the top view which similarly looked at the 1st disk cartridge from the top half side.

[Drawing 3] It is rear-face drawing which similarly looked at the 1st disk cartridge from the bottom half side.

[Drawing 4] It is the perspective view which looked at the 2nd disk cartridge of this invention from the top half side.

[Drawing 5] It is the top view which similarly looked at the 2nd disk cartridge from the top half side.

[Drawing 6] It is rear-face drawing which similarly looked at the 2nd disk cartridge from the bottom half side.

[Drawing 7] It is a top view in front of the shutter disconnection which inserted the 1st disk cartridge in drive equipment.

[Drawing 8] Similarly it is the top view of the shutter disconnection condition of the

1st disk cartridge.

[Drawing 9] It is a top view in front of the shutter disconnection which inserted the 2nd disk cartridge in drive equipment.

[Drawing 10] Similarly it is the top view of the shutter disconnection condition of the 2nd disk cartridge.

[Drawing 11] It is the perspective view of a cartridge electrode holder.

[Drawing 12] It is the amplification side elevation of the 1st disk cartridge of the same active position as drawing 7.

[Drawing 13] Similarly it is the amplification side elevation of the loading condition of the 1st disk cartridge.

[Drawing 14] It is the amplification side elevation of the 2nd disk cartridge of the same active position as drawing 10.

[Drawing 15] Similarly it is the amplification side elevation of the loading condition of the 2nd disk cartridge.

[Drawing 16] It is the top view of the shutter disconnection condition of the 1st disk cartridge of another operation gestalt.

[Drawing 17] Similarly it is an amplification side elevation in front of shutter disconnection of the 1st disk cartridge.

[Drawing 18] Similarly it is the amplification side elevation of the loading condition of the 1st disk cartridge.

[Drawing 19] Similarly it is an amplification side elevation in front of shutter disconnection of the 2nd disk cartridge.

[Drawing 20] Similarly it is the amplification side elevation of the loading condition of the 2nd disk cartridge.

[Drawing 21] It is an amplification side elevation in front of shutter disconnection of the 1st disk cartridge of still more nearly another operation gestalt.

[Drawing 22] Similarly it is the amplification side elevation of the loading condition of the 1st disk cartridge.

[Drawing 23] It is the perspective view of the 1st disk cartridge from which an insertion side head configuration differs.

[Drawing 24] It is the perspective view of the 2nd disk cartridge from which an insertion side head configuration similarly differs.

[Description of Notations]

1,100,200 -- The 1st disk cartridge, 1a -- A convex circular face configuration, 2 -- A cartridge case, 5 -- The disk of the 1st disk cartridge, 7 -- 8 The shutter plate of the 1st disk cartridge, 80 -- Cartridge electrode holder, 9 -- A shutter closing motion member, 9a -- A shutter disconnection pawl, 9b -- Shutter closedown pawl, 10 -- The shutter front end side of the 1st disk cartridge, 11 -- The window hole of a shutter plate, 21 -- The 2nd disk cartridge, 21a -- A convex circular face configuration, 22 -- Cartridge case, 25 -- The disk of the 2nd disk cartridge, 27 -- The shutter plate of the 2nd disk cartridge, 28 [-- 43 The cradle of the 2nd disk

cartridge, 44 / — Corner notching side] — The shutter front end side of the 2nd
disk cartridge, 29 — The window hole of a shutter plate, 37 — The cradle of the 1st
disk cartridge, 38
